IN THE CLAIMS:

1. (CURRENTLY AMENDED) A method for enhancing wide dynamic range in images, the method comprising:

acquiring at least two images of a scene to be imaged, the images acquired using different exposure times;

constructing for a first image of said at least two images an illumination mask comprising a set of weight values distinctively identifying respective areas of pixels of high or low illumination, over-exposed or underexposed with respect to a predetermined threshold illumination value,

assigning one of the weight values to each ~~pixels~~ pixel, whereas other weight ~~value is~~ values are assigned to other pixels of the other of said at least two images;

using a spatial low-pass filter to smooth border zones between pixels of one weight value and pixels of other weight ~~value~~ values, thus assigning pixels in the border zones new weight values in a range between the weight values; and

constructing a combined image using image data of pixels assigned with one weight value of the first image and image data of pixels assigned with other weight ~~value~~ values of the other of said at least two images and in pixels corresponding to the border zones using image data from said at least two images proportional to the new weight values.

2. (ORIGINAL) The method of claim 1, wherein the weight values are binary values.

3. (ORIGINAL) The method of claim 1, wherein the acquired images are in JPEG format, the JPEG format including a DCT transform domain.

4. (ORIGINAL) The method of claim 3, wherein the step of constructing the combined image is carried out in the DCT transform domain.

5. (CURRENTLY AMENDED) The method of claim 4, wherein the following relation is used in the constructing the combined image:

$$I_{p,q}^{DCT_{WDR}} = \alpha(I_{DC}^{Long}) * I_{p,q}^{DCT_{Long}} + (1-\alpha(I_{DC}^{Long})) * I_{p,q}^{DCT_{Short}} \cdot Ratio \quad ,$$

where $I_{DC}^{Long}$ is the DC coefficient of the DCT transform of the relatively longer exposure image, $\alpha$ is a weight representing the illumination mask, ~~and~~ Ratio is a measure that defines the ~~relation~~ relationship between the images of different ~~exposure~~ exposures, ~~and~~ $p, q$ are DCT coefficients, and * represents convolution.

6. (CURRENTLY AMENDED) The method of claim 5, wherein only first few DCT coefficients are used in calculating the ~~relation~~ relationship.

7. (ORIGINAL) The method of claim 6, wherein $p=1$ *and* $q=1$.

8. (CURRENTLY AMENDED) The method of claim 1, for color imaging, wherein the steps of claim 1 are carried ~~our~~ out separately for each color plane.

9. (CURRENTLY AMENDED) The method of Claim 1, further comprising:

detecting pixels in said at least two images indicative of motion by comparing corresponding image data from said at least two images; and

evaluating image data value for pixels identified as indicative of motion using image data from one of said at least two images and using the image data value in constructing the combined image.

10. (CURRENTLY AMENDMENT) The method of claim 9, wherein the step of detecting pixels indicative of motion comprises looking for pixels for which the ratio $I^{Long} / \hat{I}^{Long}$ is beyond a predetermined threshold, $I^{Long}$ is image data from one of said at least two images which was acquired with longest exposure time, and

$$\hat{I}^{Long} = \begin{cases} I^{Short} \cdot Ratio & where \quad I^{Short} \cdot Ratio < 255 \\ 255 & else \end{cases},$$

~~where~~ wherein Ratio is a measure that defines the ~~relation~~ relationship between the images of different ~~exposure~~ exposures.

11. (ORIGINAL) The method of claim 9, wherein the step of constructing a combined image includes using for pixels identified as indicative of motion only image data from one of said at least two images.

12. (ORIGINAL) The method of claim 11, wherein the image data from one of said at least two images is reconstructed to simulate corresponding pixels in the other of said at least two images.

13. (CURRENTLY AMENDED) The method of claim 12, wherein ~~using~~ image data from one of said at least two images which was acquired with longest exposure time is incorporated in two illumination masks.

14. (NEW) A method for enhancing wide dynamic range in images, the method comprising:

acquiring at least two images of a scene to be imaged, the images acquired using different exposure times;

constructing for a first image of said at least two images an illumination mask comprising a set of weight values distinctively identifying respective areas of pixels

of high or low illumination, over-exposed or underexposed with respect to a predetermined threshold illumination value,

assigning one of the weight values to each pixel, whereas other weight values are assigned to other pixels of the other of said at least two images;

using a low-pass filter to smooth border zones between pixels of one weight value and pixels of other weight values, thus assigning pixels in the border zones new weight values in a range between the weight values; and

constructing a combined image using image data of pixels assigned with one weight value of the first image and image data of pixels assigned with other weight values of the other of said at least two images and in pixels corresponding to the border zones using image data from said at least two images proportional to the new weight values,

wherein the acquired images are in JPEG format, the JPEG format including a DCT transform domain, wherein the step of constructing the combined image is carried out in the DCT transform domain, and wherein the following relationship is used in the constructing the combined image:

$$I_{p,q}^{DCT_{WDR}} = \alpha(I_{DC}^{Long}) * I_{p,q}^{DCT_{Long}} + (1-\alpha(I_{DC}^{Long})) * I_{p,q}^{DCT_{Short}} \cdot Ratio \quad ,$$

where $I_{DC}^{Long}$ is the DC coefficient of the DCT transform of the relatively longer exposure image, $\alpha$ is a weight representing the illumination mask, Ratio is a measure that defines the relationship between the images of different exposure exposures, $p$, $q$ are DCT coefficients, and * represents convolution.

15. (NEW) The method of claim 14, wherein only first few DCT coefficients are used in calculating the relation.

16. (NEW) The method of claim 15, wherein $p=1$ *and* $q=1$.

17. (NEW) The method of claim 14, further comprising:

detecting pixels in said at least two images indicative of motion by comparing corresponding image data from said at least two images; and

evaluating image data value for pixels identified as indicative of motion using image data from one of said at least two images and using the image data value in constructing the combined image.

18. (NEW) The method of Claim 17, wherein the step of detecting pixels indicative of motion comprises looking for pixels for which the ratio $I^{Long} / \hat{I}^{Long}$ is beyond a predetermined threshold, $I^{Long}$ is image data from one of said at least two images which was acquired with longest exposure time, and

$$\hat{I}^{Long} = \begin{cases} I^{Short} \cdot Ratio & where \quad I^{Short} \cdot Ratio < 255 \\ 255 & else \end{cases},$$

wherein Ratio is a measure that defines the relationship between the images of different exposures.

19. (NEW) The method of claim 17, wherein the step of constructing a combined image includes using for pixels identified as indicative of motion only image data from one of said at least two images.

20. (NEW) The method of claim 19, wherein the image data from one of said at least two images is reconstructed to simulate corresponding pixels in the other of said at least two images.

21. (NEW) The method of claim 20, wherein image data from one of said at least two images which was acquired with longest exposure time is incorporated in two illumination masks.